UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,318	10/16/2001	Yasuo Fukuda	35.C15887	4684

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EXAMINER
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ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _04 January 2005_.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-39_ is/are pending in the application.

　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-39_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _04 January 2005_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　a)☒ All b)☐ Some * c)☐ None of:

　　1.☒ Certified copies of the priority documents have been received.

　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

Applicant has requested the Final Rejection (mailed 5/3/05) to be re-mailed since there were
missing page(s). Below is a copy of the previously submitted Final Rejection. Also, the period
for response has been restarted. CML 8/16/05

DETAILED ACTION

Arguments and Amendments

1.   Applicant's amendments and arguments filed 4 January 2005, have been entered and

made of record.

Drawings

2.   The replacement drawings for figures 1 and 4-8 filed with the response dated 4 January

2005 are accepted.

Claim Rejections - 35 USC § 112

3.   In view of Applicant's amendments, the previous rejections under § 112 have been

withdrawn.

Claim Objections

4.   In view of Applicant's amendments, the previous claim objections have been withdrawn.

Response to Amendments and Arguments

5.   Applicant's arguments with respect to claims 1 and 5 have been fully considered but they

are not persuasive for at least the following reasons.

Regarding claim 1, Applicant argues that Girod "fails to teach or suggest that the image characteristic amounts are generated from the same image and are compared (judged) to each other, and that processing is executed based on the comparison result" (see Applicant's Remarks, p. 21). Examiner respectfully disagrees.

In figure 4 of Girod, two characteristic amounts, one corresponding to an original image block and the other corresponding to an inverse DCT of a subset of DCT coefficients of the block, are compared to each other at block 413. Thereafter, one of the characteristic amounts is selected as the desired characteristic, and processing continues on the basis of which characteristic was selected – that is, either the full DCT or the 3-coefficient DCT is utilized based on which characteristic amount was selected.

Independent claims 19, 36, and 38 contain limitations substantially the same as those of claim 1, and the above remarks apply to these claims.

Regarding claim 5, Applicant has amended the claim to denote that the coefficient selecting means selects a number of coefficients ... "in accordance with a kind of an original image." Applicant then argues that Applicant's Admission of prior art does not disclose such a feature (see Applicant's Remarks, p. 22). Examiner respectfully disagrees.

Prior Art Figure 4 of the present invention shows the conventional selection of the number of coefficients. In particular, an original image 10001 comprises three color signals (RGB). The RGB signals are then converted into YCbCr color signals, which are then transformed into DCT coefficients and quantized. The selection of the number of coefficients for each color signal is based on that fact that the image is a transformed YCbCr image rather than a

transformed RGB image. Six of the Y coefficients are selected, and three of each the Cb and Cr

coefficients are selected.

In addition, Admission discloses that the number of YCbCr coefficients depends on

whether the image is in default mode (figure 6), or in a non-default mode (figure 7). In default

mode, the number of coefficients selected is fixed at 6:3:3, whereas in the non-default mode, the

number of coefficients selected depends on the amount specified in the header – figure 7 shows

the example of selecting 6:6:6 as the number of coefficients. Thus, the number of coefficients

selected also depends on the kind of image – default or non-default.

Independent claims 23, 37, and 39 contain limitations substantially the same as those of

claim 5, and the above remarks apply to these claims.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7.   Claims 1, 2, 19, 20, 36, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated

by U.S. Patent 5,822,003 by Girod et al. ("Girod").

Regarding claims 1, 19, 36, and 38, Girod discloses an image processing

apparatus/method/storage medium/computer instructions (figure 4) comprising for performing

the steps of:

a first extracting step (block 407: extracts the inverse DCT values for a reduced number

of DCT coefficients (i.e. 3 coefficients)) for extracting a first image characteristic amount (i.e.

reconstructed image values for the reduced number of DCT coefficients) from an image;

a second extracting step for extracting a second image characteristic amount from the

image, the second image characteristic amount differing in quantity from the first image

characteristic amount (figure 4 shows that the input block, which was extracted from the full

image, is utilized as a characteristic amount in determining the error value at block 413; the first

and second characteristic amount differ in quantity, and that difference is determined at the

error block 413);

a judging step (block 413) for judging similarity between the first image characteristic

amount extracted by said first extracting step and the second image characteristic amount

extracted by said second extracting step; and

a selecting step (block 413) for selecting either the first image characteristic amount or

the second image characteristic amount as a characteristic amount of the image

in accordance with a judging result of said judging step (i.e. block 413 selects either the reduced

reconstructed-image values or the full input block as a characteristic amount of the image, and

then processes the image accordingly).

Regarding claims 2 and 20, Girod discloses an image processing apparatus according to

claim 1, wherein, if said judging means judges that the image characteristic amounts are similar

to each other, said selecting means selects the image characteristic amount having a smaller data

amount among the first and second image characteristic amounts, and, if said judging means

judges that the image characteristic amounts are not similar to each other, said selecting means

selects the image characteristic amount having a greater data amount among the first and second

image characteristic amounts (see column 8, lines 6-16).

8.   Claims 5-8, 10, 23-26, 28, 37, and 39 are rejected under 35 U.S.C. 102(a) as being

anticipated by Applicant's Admitted Prior Art ("Admission"). [See U.S. 2002/0071609 A1.]

Regarding claims 5, 23, 37, and 39, Admission discloses an image processing

apparatus/method/storage medium/computer instructions (figure 8) comprising performing the

steps of:

a DCT processing step (S10403) for effecting DCT processing of an image;

a quantization step (S10404) for effecting quantization of data subjected to the DCT

processing by said DCT processing step;

a coefficient selecting step (S10405) for selecting the number of quantization DCT

coefficients to be extracted from among the quantization DCT coefficients subjected to the

quantization by said quantization step, in accordance with a kind of an original image (see e.g.

figure 4: number selected determined in accordance with type of color space, or see figures 6

and 7: number selected determined in accordance with image being a default or non-default

image); and

a setting step for setting the number of quantization DCT coefficients selected by said

coefficient selecting step as an image characteristic amount (paragraph 16: the selected number

of coefficients is used as image characteristic data).

Regarding claims 6 and 24, Admission discloses the image has 8.times.8 pixels and is represented by Y/Cb/Cr color space (see figure 4).

Regarding claims 7 and 25, Admission discloses the image having 8.times.8 pixels is obtained by scaling-down the original image and by converting it into Y/Cb/Cr color space data if necessary (figure 4: S10401 and S10402).

Regarding claims 8 and 26, Admission discloses extracting several quantization DCT coefficients from a low frequency component side on the basis of the quantization DCT coefficients selected by said coefficient selecting means (figure 1: the quantized DCT coefficients on the low-frequecy side are extracted based on the selected number of coefficients).

Regarding claims 10 and 28, Admission discloses the quantization DCT coefficients of Y/Cb/Cr components are re-arranged by zigzag scanning (see figure 1), and, when the original image is a still image, six quantization DCT coefficients of Y/Cb/Cr components are selected, respectively, from a low frequency component side, and, when the original image is a moving image, six quantization DCT coefficients of a Y component are selected and three quantization DCT coefficients of Cb/Cr components are selected, respectively, from a low frequency component side (figure 7 shows a mode of operation wherein six coefficients on the low frequency side are selected for each component (Y, Cr, and Cb), and the selecting of the coefficients applies to any image – still or moving – captured while in that mode;

in capturing a still image, six quantization DCT coefficients of Y/Cb/Cr components are selected;

in capturing a moving image, six quantization DCT coefficients of Y/Cb/Cr components

are selected – including the capture of three Cb/Cr coefficients; in other words, the claim does

not preclude the capture of more coefficients in any mode; it only establishes that a minimum

number of coefficients are to be selected).

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

10.   Claims 9, 15-18, 27, and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Admission in view of Girod.

Regarding claims 9 and 27, Admission is silent to the image being still image or a frame

image having moving image data, and said selecting means selecting the number of

quantization DCT coefficients in accordance with the original image being a still image or

selects the number of quantization DCT coefficients in accordance with the original image

being a frame image having moving image data.

Girod discloses selecting DCT coefficients for both still (JPEG) and moving (MPEG)

images (see column 2). In particular, Girod teaches that the problem of storing moving image is

more severe than storing still images due to the number of images associated with a video

sequence (column 2, lines 21-27). Based on this teaching, it would have been obvious to

selecting the number of coefficients in accordance with the fact that the image is a still image or

a moving image, as claimed, since selecting a lower or higher number of coefficients to process

determines how fast processing occurs and how much bandwidth and storage is required to

transmit and store the image, as taught by Girod. Since moving images require much more

bandwidth and storage space than still images, it would have been obvious to select the

coefficients in accordance with the fact that the image is a still image and does not require high

bandwidth/storage space or the fact the image is a moving image and does require high

bandwidth/storage space.

Regarding claims 15 and 32, Admission discloses two candidates (121 and 122, figure 1)

are prepared as the number of quantization DCT coefficients in said selecting means, and one is

selected (S10405, figure 8) among them.

Admission does not disclose: similarity between first image characteristic amount data

associated with the smaller number of quantization DCT coefficients and second image

characteristic amount data associated with the greater number of quantization DCT coefficients

is judged, and

one of the first image characteristic amount data and the second image characteristic

amount data is selected in accordance with a comparison result between a similarity value and a

predetermined threshold value.

Rtaher, Admission discloses that the selecting of the "characteristic amount data" (e.g.

121 or 122, figure 1) is predetermined and that no comparison of the two characteristic amount is

effected (see paragraph 25 and figures 6 and 7).

Admission discloses that the similarity between characteristic data, such as 121 and 122 in figure 1, may be calculated (see paragraphs 21-24) but does not disclose that the data can be compared to effect a selection, as claimed.

Girod discloses an image processing system that selects between utilizing a reduced number of DCT coefficients or the full number of DCT coefficients. Figure 4. A DCT that generates only three coefficients is computed (401). Then, the inverse of those three coefficients is computed (407) and compared (413) to the original input block (405) to generate an error value. If the error value is smaller than a threshold, then the reduced number of DCT coefficients is utilized; if the error value is larger than a threshold, then the full number of DCT coefficients is utilized.

Essentially, Girod discloses comparing a reduced-sample version of the image block to the original version of the image block. If the two versions are substantially similar, then Girod concludes that the reduced-sample version is a suitable representation of the image block. Otherwise, the original version is utilized.

Using the reduced-sample version has the primary advantage of required less bandwidth than the original version, while being perceptually similar to the original version (see column 7, lines 9-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Admission by Girod to achieve the claimed invention by

1) determining the similarity of two characteristic amount data (e.g. 121 and 122, figure 1) and

2) selecting one of the two data amounts based on a comparison between the similarity

and a threshold,

since Girod teaches that calculating the similarity between a reduced-sample version and

a full version of an image block, and then selecting one of the two version based on the similarity

allows an image block to be encoded with less bandwidth when the reduced-sample version is

substantially similar to the full version.

It is noted that Girod performs comparisons in the image domain, whereas the

comparison of Admission in paragraphs 21-24 is in the frequency domain. In spite of this

distinction, Girod's broad teaching of comparing a reduced-sample version to a higher-sample

version to effect a selection thereof provides sufficient motivation for Admission to perform a

frequency-domain comparison in order to select between characteristic amounts, such as 121 and

122 of figure 1.

Regarding claims 16 and 33, Admission discloses the similarity between the first image

characteristic amount data and the second image characteristic amount data is judged, judgment

of the similarity is effected by supplementing a predetermined value as data of a coefficient

portion which is not included in the first image characteristic amount data having a smaller

number of coefficients but is included in the second image characteristic amount data having

greater number of coefficients to the first image characteristic amount data (see paragraph 24).

Regarding claims 17, 18, 34, and 35, Admission discloses the predetermined value is 16

which is the number of quantization DCT coefficients and which means that the DCT

coefficient is zero.

11.   Claims 3, 4, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Girod in view of Admission.

Regarding claims 3 and 21, Girod is silent to the image character amount being obtained

by scaling the image and by effecting DCT processing and quantization processing on the

scaled image and by extracting several coefficients among coefficients obtained by a processing

result from a low frequency component side.

Rather, Girod discloses the image characteristic amount is obtained by performing a 3-

coefficient DCT (401, figure 4) for coefficients on the low-frequency component side. Girod

also discloses quantizing the coefficients (column 8, lines 24-33) but is silent to scaling the

image.

Admission discloses that, in conventional MPEG processing, the image is scaled down

(S10401, figure 8) prior to DCT processing and quantizing. It would have been obvious to

achieve the claimed invention by scaling down the image prior to DCT processing and

quantizing since Admission shows that scaling down the image is a conventional technique

whose advantages are well-known.

Regarding claims 4 and 22, Girod's first and second extracting processing corresponds to

different numbers of coefficients (i.e. the 3-coefficient DCT only produces 3 DCT coefficients,

whereas the DCT of the full block produces the full number of DCT coefficients).

12.   Claims 11 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Admission in view of U.S. Patent Application Publication 2002/0024602 by Juen.

Regarding claims 11 and 29, Admission is silent to image inputting means capable of

inputting both still image data and moving image data, and judging means for judging whether

the image inputted in accordance with an image input mode is a still image or a frame image

having the moving image data.

Juen discloses a digital camera capable of inputting both stall and moving images. In

figure 6, a changeover switch 10b judges whether the image inputted is in accordance with a

still mode or moving image mode.

It would have been obvious to one of ordinary skill in the art at the time of the invention

to provide Admission with an input means that is capable of inputting both still and moving

images in accordance with Juen's disclosure, since Juen's camera provides the versatility of

inputting either still or moving images.

13.   Claims 12, 14, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Admission in view of Juen, and further in view of Girod.

Regarding claim 12, Juen discloses said image inputting means capable of inputting both

still image data and moving image data is a digital video device capable of effecting still image

sensing (e.g. figure 6).

Juen does not disclose that the number of quantization DCT coefficients to be selected is

based on an image sensing mode of the digital video device.

However, for the same reasons as articulated for claim 9 above, it would have been obvious in view of Girod to selected the coefficients based on whether the captured image is a still image (i.e. JPEG) or a moving image (i.e. MPEG).

Regarding claims 14 and 31, the feature of the extension of a file number of data including the original image judging whether the original image has still image data or moving image data would have been an obvious expedient (Official notice is taken of the fact that the file extensions of image data conventionally indicate ("judge") the type of image).

14.   Claims 13 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admission in view of U.S. Patent Application Publication 2002/0024602 by Juen as applied to claim 11 and 29 above, and further in view of U.S. Patent 6,665,090 by Hall et al. ("Hall").

Regarding claims 13 and 30, neither Admission nor Juen discloses the MIME TYPE of data including the original image judges whether the original image has still of moving image data.

Hall discloses that, conventionally, transferred data includes a MIME type, which indicates the type of data being transferred, so that the receiver knows how a received file should be rendered. The MIME type distinguishes between e.g. text/html data and gif image data (see column 2, lines 25-40). Based on this background teaching, it would have been obvious to those skilled in the art that a MIME type was typically used for designating the type of file being transferred or requested and would distinguish between e.g. MPEG and JPEG files to judge whether a particular file contained still or moving image data.

Conclusion

15.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Colin M. LaRose whose telephone number is (571) 272-7423. If

attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia

Au, can be reached on (571) 272-7414. The fax phone number for the organization where this

application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should

be directed to the TC 2600 Customer Service Office whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CML
Group Art Unit 2623
24 April 2005

VIKKRAM BALI
PRIMARY EXAMINER